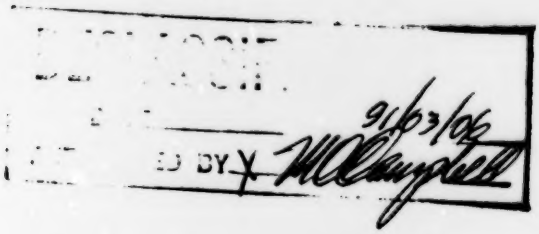

FISSION TRACK AGES OF THREE APATITES

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FISSION TRACK AGES OF THREE APATITES

by

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ABSTRACT

Three apatite specimens from carbonatites were dated by the fission track method and found to have ages that were the same within the uncertainties and about 110 m.y.

PROCEDURE

The samples of apatite listed in the table were obtained from Professor D.D. Hogarth in July, 1986. A representative portion was removed from each, annealed (heated to destroy the fission tracks present) at 390-410^{o}C for 2 hours, and irradiated in the McMaster University Nuclear Reactor. Neutron dosimeters irradiated with them showed that they received (7.27) 10^{14} neutrons/cm^{2}.

Portions of the original and the irradiated samples were mounted in epoxy, polished to expose internal surfaces, and etched 25 seconds in concentrated HNO_3. Fission tracks were then counted on surfaces of at least 50 grains in each portion using a magnification of 600X. From the resulting track densities, ρ (number of tracks/cm^{2}), the ages of the specimens were calculated. The uncertainties to 1σ in the calculated ages were estimated from the fact that the 1σ uncertainty in a track count is equal to the square root of the number of tracks counted. The results are compiled in the table.

Fission Track Ages of Apatites

No.	T_s	T_i	ρ_s	ρ_i	t m.y.
N-1	716	605	$(1.22)10^5$	$(5.88)10^4$	115.2±7.2
S-1	725	428	$(1.15)10^5$	$(6.195)10^4$	103.1±7.0
CB 15-1	1020	655	$(1.476)10^5$	$(7.426)10^4$	110.6±6.5

T_s = Number of fossil tracks counted

T_i = Number of neutron-induced tracks counted

ρ_s = Number of fossil tracks/cm^2

ρ_i = Number of neutron-induced tracks/cm^2